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Title:

INFORMATION MANAGEMENT AND MOVEMENT SYSTEM AND METHOD

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INFORMATION MANAGEMENT AND MOVEMENT SYSTEM AND METHOD

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application is a continuation-in-part of United States patent application serial number 10/135,878, filed April 29, 2002, entitled "Information Management and Movement System and Method," to which priority is hereby claimed and which is hereby incorporated by reference herein. The present application is related to concurrently filed and commonly assigned United States patent application serial number [63134-P001CP1-10212318] entitled "Information Management and Movement System and Method," the disclosure of which is hereby incorporated herein by reference. The present invention is also related to co-pending and commonly assigned United States patent applications serial number 09/640,831 entitled "System and Method for Reverse Billing of a Telephone Call," serial number 09/640,999 entitled "System and Method for Affecting Inmate Conduct With Good Behavior Discount Telephone Rates," serial number 09/995, 253 entitled "Method and Apparatus for Exchanging Data Between A Primary Computer System And An External Computer System To Ensure Transactional Reconciliation Between The Systems," serial number 10/022,946 entitled "Method for Determining an Entity Responsible for Billing a Called Party," and co-pending and commonly assigned United States patent application serial number 10/252,956 entitled "Three-Way Telephone Call Prevention System and Method." All of the above identified applications are hereby incorporated by reference herein.

TECHNICAL FIELD

[0002] The present invention relates generally to information systems, and more particularly, to the management of, and access to, information with respect to a controlled environment both from within a particular facility and remote therefrom.

BACKGROUND

[0003] Information management is becoming an increasingly critical key to the effective management of institutions and commercial enterprises. The information may relate to services, products, facilities, consumers, or staff, but it needs to be managed, moved, and accessed effectively if use of resources is to be optimized and/or profits are to be maximized.

[0004] The information needed to effectively and efficiently manage and operate a controlled environment, such as an inmate facility, may reflect the unique requirements of such a facility. There is often a need to facilitate both management of, and access to, various data with respect to a facility on a continuing basis. However, automation of management and access to information pertaining to controlled environment facilities, and the residents therein, has been limited and integration of various different management functions has been even less prevalent. Moreover, there has been little, if any, interaction with respect to access of information pertaining to personal records of those confined to certain facilities.

[0005] For example, due to the unique situation of many of the individuals residing within controlled environment facilities, it has been heretofore unheard of to allow access to personal data pertaining to such residents, or to operational aspects of the facility itself to persons outside of the facility. Similarly, due to their disparate nature, commercial enterprises and individuals external to the controlled environment facility have heretofore been unable to have access to management functionality, or the information associated therewith, of the facility to facilitate their providing goods and services, or otherwise interact with, individuals residing within controlled environment facilities.

[0006] The problems discussed herein are compounded when Federal, State, and municipal jurisdictions are considered. For example, it is difficult, at best, for personnel at a Federal prison facility to easily obtain information on an individual's activities with respect to misdemeanors involving a local municipality. To obtain such information, a user would have to contact the local police department as well as the local court system and perhaps even the local probation department. When domestic situations occur, or when minors are involved, the problem is even more compounded in that Family Services and/or Juvenile Services might also be involved.

[0007] Currently, technology that has been deployed uses client server technology in which applications specific to one facility, or to one function within a facility, are designed. This type of system is an isolated point of technology, and solves only one isolated issue for a limited number of users. It is desired to share information on a technology level and to allow the approximately 50,000 desktop computers which now exist to access, on a controlled basis, that

information without being constrained by the physical location of the computer and without being constrained by the enterprise affiliation of the computer.

BRIEF SUMMARY OF THE INVENTION

[0008] In one embodiment, systems and methods of the present invention provide peer-to-peer availability of information on a network wide basis, with the network or information technology (IT) fabric spanning a wide range of institutions and other sources of information, including correctional facilities, without regard to which jurisdiction the source of information belongs, e.g. police, courts, federal investigation agencies, public databases etcetera. Embodiments of the invention provide an electronic based capability utilizing information vectors to identify useful information and hop databases for locating, collecting, compiling, aggregating, distilling, and/or reporting robust data. Preferred embodiments of the present invention employ multi-dimensional, multi-informational vectors not only to directly identify and harvest data from the IT fabric, but also to spawn extended or indirect data identification, correlation, and/or harvesting of data, such as through recognizing crossing points or confluence of such vectors and initiating database hops for exploring additional, e.g., related or relevant, data. Data located, collected, compiled, aggregated, distilled, and/or reported according to embodiments of the present invention may be utilized with respect to investigation (e.g., police investigation of crimes or suspects), credit decisions (e.g., decisions with respect to providing goods or services, such as calling service, in real-time), identification (e.g., to confirm the identity of a detainee), collection (e.g., identify parties who know an individual, to identify an individual's property, to perform skip-trace analysis, etcetera), decision making (e.g., determine if a medication should be administered), locating an individual (e.g., identifying parties who know an individual), commerce (e.g., determining a source of funding), payments (e.g., determining a proper entity to receive payment), and/or the like.

[0009] Information management and retrieval systems of the present invention may be deployed for use with respect to a variety of controlled environment facilities, including inmate facilities (e.g., municipal jails, county jails, state prisons, federal prisons, military stockades, juvenile facilities, and detention camps), hospitals, nursing homes, camps, and the like. For example, information management and retrieval systems of the present invention may be disposed within such a controlled environment facility, or disposed remotely thereto having

operator (user) terminals disposed within each of the different facilities, to provide information management, movement and access uniquely suited for use with respect to such an environment. Additionally, information management and retrieval systems of the present invention may be coupled to other systems, whether internal or external to the controlled environment facility, including networks (such as the public switched telephone network (PSTN) and the Internet), databases (such as demographic databases, consumer account databases, historical records databases, government databases, and judicial databases), and platforms (such as personal computers, computer networks, and even other information management systems of the present invention). It should be appreciated, however, that aspects of the present invention are useful without regard to controlled environment facilities, and therefore there is no limitation to use of embodiments of the present invention with respect to controlled environment facilities.

[0010] In one embodiment, a web browser is used at any number of user locations to gain access, by the user, to data contained in databases maintained at any number of facilities or other sources of information, thereby providing anytime, anywhere access to robust data. Embodiments of the invention provide such data access not only to facility administration and personnel, but also to persons disposed remotely, even in the field, such as police on the streets.

[0011] A peer to peer arrangements is preferably used, such that all available information is assigned a security level and/or sharing group and then becomes accessible to anyone having the designated security level and/or sharing group designation. The security level could, if desired, be associated with a peer level. Also, the user could not only access the data specific to a particular file (for example, an individual), but could also access any associated data files or other databases recognized by the system as containing useful information, whether locally or remotely maintained.

[0012] These "additional" files, could be manually populated data files or could be associative files which track particular transactions or other information associated with a particular file, such as a file of who an individual represented by a selected file has called within the last month, or year, or the "additional" file could be a list of relatives, or a list of goods purchased, some, or all, of these lists could be maintained in databases located remote both from the user and from the target database and may be compiled and/or updated automatically, such as through operation of information management systems of the present invention. The

"additional" files may be identified using the aforementioned information vectors and/or vector crossing points or confluence.

[0013] In a further embodiment, information management and retrieval systems of the present invention are used to facilitate information exchange and interaction among individuals and agencies. For example, chat rooms, bulletin boards and other features which allow users at various facilities within a community of interest to exchange concepts on a peer to peer basis may be implemented according to embodiments of the invention.

[0014] One preferred embodiment utilizes an information management and retrieval system comprising intelligence/management functionality and transaction/commerce functionality to provide interoperability across a variety of controlled environment functions. For example, a preferred embodiment provides interoperability of such facility management functions as facility administration, record management, dispatching of personnel, to efficiently utilize resources as well as to provide seamless movement and availability of data throughout these functional aspects. Additionally, functionality unique to the particular controlled environment facility, such as video arraignment, video visitation, investigation, and the like, may be provided interoperability according to the present invention. Preferably, transaction and commerce functionality, such as marketing of goods and services to residents or individuals having an interest in the residents, ordering of goods and services by residents or individuals having an interest in the residents, sales of goods and services by vendors, and payment for goods and services through prepaid and postpaid techniques, with account establishment and debit/credit functionality, is provided interoperability with management functions, or aspects thereof, according to the present invention.

[0015] Preferred embodiment information management systems and methods provide connectivity and functionality both within the controlled environment facility and outside the controlled environment facility, such as through the use of an information portal providing real-time information communication through a variety of media and according to various protocols. For example, management, staff, and residents within the controlled environment facility may be provided interfaces for accessing particular functional aspects available to the individual. Likewise, individuals and/or commercial enterprises having some interest in the controlled environment facility, or the residents thereof, may be provided

interfaces for accessing particular functional aspects of the system. Such individuals and commercial enterprises may include friends and family of residents, vendors, government agencies (e.g., judicial officials, law enforcement officials, and other local, state, and federal agencies), providers of services to residents (e.g., doctors, clergymen, attorneys, bail bondsmen, and counselors), and individuals with a connection to the facility or its residents (e.g., voters in the county and victims of a crime committed by a resident).

[0016] The interfaces provided according to the present invention may be varied depending upon the individual given access and/or the functionality available to the individual. Accordingly, a manager may be given access to the information management system via computer systems (local and/or remote) personal digital assistants (PDAs), pagers, and telephones (wireline and/or wireless), to facilitate input of data, querying of data, notification of events or conditions, management of the facility, receiving reports, etcetera. However, a resident of the controlled environment facility may be given access to the information management system via a wireline telephone only, to thereby restrict the resident to making outbound calls (which may be restricted by operation of the information management system in time, duration, destination, content, etcetera) and/or the acquisition of particular goods available to residents. Similarly, vendors may be given access to the information management system via a remote computer system and/or telephone (wireline and/or wireless) to receive orders from the facility, verify accounts or status of payment, and coordinate delivery of goods and services.

[0017] Access to and/or collection of data by information management systems of the present invention may utilize biometrics, such as voice print, finger print, iris and/or retina scan, hand scan, face and/or personal physical attribute recognition, and the like. Accordingly, one or more of the above identified user terminal devices may be equipped with biometric interfaces for use in collection appropriate biometric data for use in verifying a user, collecting biometric data for storage by the information management system, for authorizing a transaction or transactions, etcetera.

[0018] Embodiments of the invention provide a customized browser type interface, similar to that used with respect to the World Wide Web, to provide a user friendly front end which seamlessly presents relevant information, irrespective of from what peer or combination of peer systems it is obtained, to users. Preferably the browser interface is multimedia capable to

facilitate presentation of text data, e.g. inmate records, audio data, e.g., recordings of inmate phone calls, and video data, e.g., photographs and streaming video.

[0019] The foregoing has outlined rather broadly the features and technical advantages of the present invention in order that the detailed description of the invention that follows may be better understood. Additional features and advantages of the invention will be described hereinafter which form the subject of the claims of the invention. It should be appreciated by those skilled in the art that the conception and specific embodiment disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present invention. It should also be realized by those skilled in the art that such equivalent constructions do not depart from the spirit and scope of the invention as set forth in the appended claims. The novel features which are believed to be characteristic of the invention, both as to its organization and method of operation, together with further objects and advantages will be better understood from the following description when considered in connection with the accompanying figures. It is to be expressly understood, however, that each of the figures is provided for the purpose of illustration and description only and is not intended as a definition of the limits of the present invention.

BRIEF DESCRIPTION OF THE DRAWING

[0020] For a more complete understanding of the present invention, reference is now made to the following descriptions taken in conjunction with the accompanying drawing, in which:

[0021] FIGURE 1 shows a block diagram of a controlled environment information management system deployed according to a preferred embodiment of the present invention;

[0022] FIGURE 2A shows a block diagram of an integrated controlled environment information management architecture according to a preferred embodiment of the present invention;

[0023] FIGURE 2B shows detail with respect to an embodiment of correct middle-ware of FIGURE 2A;

[0024] FIGURE 3 shows a processor based system adapted to provide controlled environment information management according to an embodiment of the present invention;

[0025] FIGURE 4 shows an illustration of the flow of information through a controlled environment information management system, such as that of FIGURES 1 and 2, deployed with respect to an inmate facility;

[0026] FIGURE 5A shows a block diagram of an integrated controlled environment information management architecture adapted for use with respect to an inmate facility according to a preferred embodiment of the present invention;

[0027] FIGURE 5B shows a graphical representation of a data framework utilized according to an embodiment of an integrated controlled environment information management architecture of the present invention;

[0028] FIGURES 6A and 6B show illustrations of the flow of information over a network having data bases in diverse locations according to embodiments of the invention;

[0029] FIGURE 7 shows a chart illustrating various categories of data and corresponding levels of security and access according to one embodiment of the invention;

[0030] FIGURES 8 – 11 show one embodiment of a browser interface according to an embodiment of the invention;

[0031] FIGURE 12 illustrates database hoping and data harvesting resulting from a user query, such as may be made via a browser interface of FIGURES 8-11;

[0032] FIGURE 13 shows a relationship link chart illustrating how the various databases may be associated and relevant data harvested therefrom to provide an activity dossier for a particular relationship using the multi-dimensional, multi-informational vectors of an embodiment of the invention;

[0033] FIGURE 14 shows a relationship link chart formula with respect to a selected called individual which may be derived using multi-dimensional, multi-informational vectors; and

[0034] FIGURE 15 illustrates access to a public database via embodiments of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0035] Controlled environment facilities, such as inmate facilities, hospitals, nursing homes, and camps, may be thought of as a small community or city, perhaps walled or otherwise access restricted, wherein various activities occur within the community and between the community and those outside the community in the daily operation thereof. Such a community includes a number of individuals and enterprises directly associated therewith, including management, staff, and inmates, residents, patients, or guests (hereinafter referred to as residents), and a number of individuals and enterprises indirectly associated therewith, including friends and family of residents, vendors, government agencies, providers of services to residents, and individuals with a connection to the facility or its residents. Information is often exchanged and transactions are often conducted by, between, among, and on behalf of the aforementioned individuals and enterprises in performing the aforementioned daily activities.

[0036] It shall be appreciated that in such a controlled environment, there may be unique relationships, situations, and information which may be leveraged in providing management functions or in conducting transactions. For example, information flowing from residents may be monitored and/or processed in an intelligence area to ensure the safety and security of those within the controlled environment facility and those outside of the facility. Moreover, information with respect to individuals and/or enterprises having an interest in residents of the controlled environment facility may be utilized in facilitating transactions, such as toll telephone calls and the purchase of commissary items. Accordingly, preferred embodiments of the present invention provide integration of various functional aspects associated with a controlled environment facility to provide a robust information movement and management platform.

[0037] Directing attention to FIGURE 1, a controlled environment information management system of the present invention is shown according to a preferred embodiment to provide integrated management and movement of information and transaction and commerce facilitation within and associated with a controlled environment facility. Specifically, controlled

environment information management system 110 is deployed within controlled environment facility 100. Although illustrated as being deployed within the controlled environment facility in FIGURE 1, it should be appreciated that controlled environment information management systems of the present invention may be deployed in a number of configurations. For example, embodiments of the present invention provide an information management system deployed external to the controlled environment facility and having data terminals and/or other access points deployed within the controlled environment facility. Additionally or alternatively, information management systems may be provided in a distributed topology, such as having server systems, application programs, and/or databases distributed throughout a number of geographic locals, according to embodiments of the present invention.

[0038] As shown in FIGURE 1, information management system 110 may provide a number of access points coupled to a variety of user terminal equipment configurations. User terminal equipment utilized according to preferred embodiments of the present invention may include personal computers, personal digital assistants (PDAs), pagers, telephones (wireline and wireless), facsimile machines, and the like, coupled through direct links, such as wireline, cable, fiber optic, etcetera, and/or indirect links, such as network links, private branch exchange (PBX) links, etcetera. Accordingly, information management system 110 of the illustrated embodiment provides connectivity to user terminals 122-1 through 122-M disposed within controlled environment facility 100 via direct connections, user terminals 121-1 through 121-N disposed within controlled environment facility 100 via indirect connections (here comprising network or networks 120, referred to herein as network 120), and user terminals 131-1 through 131-P disposed external to controlled environment facility 100 via indirect connections (here comprising XML connections and/or network or networks 130, referred to herein as network 130).

[0039] Various ones of user terminal equipment utilized according to the present invention may be configured to include the ability to collect biometric data, such as through the use of fingerprint readers, hand scanners, cameras, microphones, iris and/or retina scanners, and/or the like. For example, a personal computer, PDA, and/or telephone terminal utilized according to the present invention may be equipped with a camera, whether still or moving image, to capture an image of a user's face or other physical attribute. It should be appreciated

that the aforementioned camera (and similarly, microphones) utilized at various user terminals for collection of biometric data may itself not be uniquely adapted for biometric data processing and, therefore, may be readily available for use according to the present invention. However, systems of the present invention, whether user terminals or information management systems, preferably include adaptation such as computer program code, for collecting, processing, and/or storing biometric data as described herein. User terminals may additionally or alternatively be equipped with a more specialized form of biometric interface, such as a fingerprint reader or iris scanner, utilized exclusively for the collection of biometric data. Captured biometric data may be processed to verify the identity of the user, such as to allow access to data or services or to authorize a transaction, or the biometric data may be collected for storage by the information management system, such as to supplement a database entry associated with the user. It should be appreciated that collected biometric data may be processed locally by a user terminal, such as to verify the identity of a user for authorizing further interaction, or may be processed by the information management system, such as by receiving raw biometric data from a user terminal and providing processing thereof to supply a result code to the user terminal.

[0040] In accordance with the preferred embodiment of the present invention, controlled environment information management system 110 is adapted to include intelligence/management functionality 111 and transaction/commerce functionality 112. Preferably, intelligence/management functionality 111 provides for processing, collection, storage, and movement of information for managing various operational aspects of the controlled environment facility, including the management of personnel, residents, vendors, and resources. Transaction/commerce functionality 112 preferably provides for the instigation and completion of various transactions, including requesting and providing goods and services, determining credit worthiness, verifying account balance and status, and providing for payment. The aforementioned functionality is preferably provided according to the present invention at any distance and at any time.

[0041] Directing attention to FIGURE 2A, a preferred embodiment integrated architecture of a information management system of the present invention is shown. Specifically, information management system 110 is shown as including a plurality of vertical applications and modules useful therewith, including communication/transaction services 221,

facility administration manager 222, record management system 223, computer aided dispatch 224, video arraignment/visitation 225, and investigative tools 226, providing features and functions for providing desired management and transactions. Each of these vertical applications and modules may provide features and functions desirable with respect to the controlled environment facility.

[0042] For example, communication/transaction services 221 may provide distance telephony, prepaid and postpaid toll calling services, telephonic commerce, account balance verification and refill, and credit worthiness determination as may be utilized by residents, friends and family thereof, and vendors. It should be appreciated that the communications and transactions facilitated by communication/transaction services 221 are not limited to any particular type or format of communications or transactions. For example, communication/transaction services 221 may facilitate voice and/or video communications, such as plain old telephone services (POTS), voice over Internet protocol (VoIP) communications, and multi-media communications, as well as other forms of communications, including e-mail, short message service (SMS), alpha-numeric paging, etcetera. Facility administration manager 222 may provide management of residents from entry into the facility to release therefrom, management of facility staff and resources, and data querying and reporting. Record management system 223 may provide storage, access, management, and/or maintenance of databases comprising information with respect to residents, staff, resources, and transactions. Computer aided dispatch may provide assignment, allocation, and/or dispatching of resources and personnel. Video arraignment/visitation 225 may provide multimedia communication, as may be useful in providing visitation by remote parties and/or making remote appearances by a resident. Investigative tools 226 may provide collection, processing, analysis, and/or reporting of information for intelligence purposes.

[0043] Any or all of the vertical applications above may, in addition to providing the aforementioned core functionality thereof, also provide functionality useful according to embodiments of the present invention, such as biometric data processing/user verification, user data collection, and/or the like. For example, communication/transaction services 221 may provide personal identification number (PIN), personal access number (PAN), and/or biometric security with respect to voice, video, and e-mail communications. The features and functions

provided by vertical applications and modules of a preferred embodiment as deployed with respect to an exemplary controlled environment facility is discussed in further detail below.

[0044] Also shown in the integrated architecture of FIGURE 2A is a layer, connect middle-ware 231, providing interconnection with respect to vertical applications and modules 221-226. According to the preferred embodiment, connect middle-ware 231 provides voice, video and/or data integration among and between the aforementioned vertical applications and modules. For example, connect middle-ware 231 may utilize a plurality of modular interfaces, such as application program interfaces (APIs) as are well known in the art, to arbitrate data communication between and among vertical applications and modules 221-226. Connect middle-ware 231 preferably provides for modular interconnection with respect to various applications to thereby facilitate addition of applications as desired and/or configuring the information management system for use with respect to particular facilities.

[0045] FIGURE 2B provides further detail with respect to an embodiment of the above mentioned connect middle-ware. In the embodiment of FIGURE 2B, connect middle-ware 231 comprises a plurality of data couplers adapted to provide interconnection with respect to particular applications. Specifically, jail management system data coupler 231a is adapted to interface between applications of intelligence/management functionality 111 (e.g., record management system 223, computer aided dispatch 224, investigative tools 226, etcetera) and node server application 227. Similarly, communications processing system data coupler 231b is adapted to interface between applications of transaction/commerce functionality 112 (e.g., communication/transaction services 221, video arraignment/visitation 225, etcetera) and node server application 227. Preferably, jail management system data coupler 231a provides connectivity with respect to a variety of jail management systems, such as JAM available from Evercom Systems, Inc., Irving Texas (the assignee of the present application), LEMS available from FSG Software Inc. (location unknown), and TIBURON available from Tiburon, Inc., Fremont CA, to import data into the node server application, such as to an SQL database thereof. According to a preferred embodiment, communications processing system data coupler 231b provides connectivity with respect to a variety of call processing systems, such as CAM available from Evercom Systems, Inc., Irving Texas, and VAC Call Processing System available

from Value Added Communications, Plano Texas, to import data into the node server application, such as to an SQL database thereof.

[0046] Node server application 227 of a preferred embodiment provides information communication between controlled environment information management system 110 and a justice information network to thereby provide an information sharing architecture as described in further detail below. Accordingly, embodiments of node server application 227 may comprise such functionality as a content management system, such as to build dossiers from data stored in a database associated therewith, a synchronization manager, such as to control the monitoring of data couplers and uploading data to a hub, a web server, such as to serve information such as dossiers to clients, security control, such as to manage access by browser client requests, a SQL database, such as to store content management system dossier data and metadata, and administration functionality, such as to allow for remote management of the node server application.

[0047] As described above, preferred embodiments of information management systems of the present invention provide connectivity, such as to a variety of user terminal equipment and/or a plurality of information management systems of the present invention, both within and outside of an associated controlled environment facility. Accordingly, connect middle-ware 231 of the illustrated embodiment is coupled to information portal 241. Information portal 241 provides external connectivity with respect the vertical applications and modules and/or other aspects of the information management system. For example, information portal 241 may provide information communication between any of vertical applications and modules 221-226 and users thereof, via connect middle-ware 231 and network 120, network 130, or any of a number of other links. Information portal 241 may facilitate such functionality as voice, e-mail, and/or video conferencing, information and dossier sharing via a network such as the Internet, alert broadcasts, and/or the like.

[0048] It should be appreciated that a plurality of communication lines and/or wireless communication links, such as the public switched telephone network (PSTN), cellular networks, personal communication services (PCS) networks, the Internet, cable transmission systems, satellite communication systems, electrically conductive transmission lines, fiber optic links, local area networks (LANs), metropolitan area networks (MANs), wide area networks

(WANs), intranets, extranets, and the like, may be utilized in providing information communication according to the present invention. A user might access one or more aspects of information management system 110 via information portal 241 using an interface, such as a browser configuration well known in the art. Similarly, information management system 110, or systems or users thereof, may access resources external thereto, such as other information management systems, external data bases and servers, user terminals, etcetera, via information portal 241.

[0049] In addition to providing the aforementioned connectivity, information portal 241 of the preferred embodiment provides additional functionality related to information communication. For example, information portal 241 may provide for the collection of real-time call statistics. Similarly, information portal 241 may capture information related to a call or communication, such as automatic number identification (ANI) information, dialed number identification service (DNIS) information, communication routing information, information useful in determining call accounting records, commissions, or other related financial information, and the like. Additionally, information portal 241 is not limited to telephony communication and, therefore, may provide a data firewall, e-mail management, packet or other Internet destination routing, or like functionality useful with respect to data communication.

[0050] The integrated architecture of the illustrated embodiment further includes diagnostics 251. Preferably, diagnostics provides real-time diagnostic monitoring with respect to software and hardware aspects of the information management system. Accordingly, diagnostics 251 of the illustrated embodiment is coupled to connect middle-ware 231 to facilitate interaction with software and hardware aspects of information management system 110. Moreover, the diagnostic capabilities of diagnostics 251 are preferably available remotely and, therefore, the illustrated embodiment of diagnostics 251 is coupled to information portal 241 via connect middle-ware 231. In operation, diagnostics 251 may monitor operation of information management system 110 to detect anomalous or undesired behavior, such as failure of a hardware component, excessive errors in a communication link, application software error codes, attacks upon system security, and the like, and provide warnings or alarms to operators or service personnel, such as by issuing an e-mail communication or initiating a phone call or pager alert. Similarly, diagnostics 251 may analyze operation with respect to resources of information

management system 110, such as available storage space, utilization of communications ports, processing speed, etceteras, to thereby predict undesired behavior for preemptive action. Preferred embodiment diagnostics 251, therefore, operates to minimize the risk of loss of information and the amount of down-time associated with use of information management system 110.

[0051] In addition to providing the aforementioned notification of particular conditions, diagnostics 251 preferably provides a user interface, such as using a browser configuration as is well known in the art, to allow an operator to access diagnostics 251 from a remote user terminal for such purposes as performing diagnostics and configuring diagnostics 251. Accordingly, an operator may be located anywhere in the world and access diagnostics 251, via information portal 241, and explore operational aspects of various components, such as circuit cards and application programs.

[0052] Referring again to FIGURE 2A, applications platform 210 of the illustrated embodiment serves as the base on which the integrated architecture of information management system 110 may be constructed as desired. For example, when implemented in software, the elements of the present invention are essentially the code segments to perform the necessary tasks. The program or code segments can be stored in a computer readable medium or transmitted by a computer data signal embodied in a carrier wave, or a signal modulated by a carrier, over a transmission medium. The "computer readable medium" may include any medium that can store or transfer information. Examples of the computer readable medium include an electronic circuit, a semiconductor memory device, a ROM, a flash memory, an erasable ROM (EROM), a floppy diskette, a compact disk CD-ROM, an optical disk, a hard disk, a fiber optic medium, a radio frequency (RF) link, etceteras. The computer data signal may include any signal that can propagate over a transmission medium such as electronic network channels, optical fibers, air, electromagnetic, RF links, etceteras. The code segments may be downloaded via computer networks such as the Internet, an intranet, etcetera.

[0053] FIGURE 3 illustrates computer system 300 adapted to use the present invention, such as may correspond to platform 210 shown in FIGURE 2A. Central processing unit (CPU) 301 is coupled to system bus 302. The CPU 301 may be any general purpose CPU, such as a processor from the Intel PENTIUM processor family, or a Motorola POWERPC

processor. However, the present invention is not restricted by the architecture of CPU 301 as long as CPU 301 supports the inventive operations as described herein. Computer system 300 may be operating under control of an operating system such as Microsoft WINDOWS NT, or other release of the WINDOWS operating system, UNIX, LINUX, and the like.

[0054] Bus 302 of computer system 300 is coupled to random access memory (RAM) 303, which may be SRAM, DRAM, or SDRAM. ROM 304 is also coupled to bus 302, which may be PROM, EPROM, or EEPROM. RAM 303 and ROM 304 hold user and system data and programs as is well known in the art. Bus 302 is also coupled to input/output (I/O) controller card 305, communications adapter card 311, user interface card 308, and display card 309. The I/O adapter card 305 connects to storage devices 306, such as one or more of a hard drive, a CD drive, a floppy disk drive, a tape drive, to the computer system. The I/O adapter 305 is also connected to printer 314, which would allow the system to print paper copies of information such as document, photographs, articles, etcetera Note that the printer may a printer (e.g. dot matrix, laser, etceteras), a facsimile machine, or a copier machine. Communications card 311 is adapted to couple the computer system 300 to a network 312, which may be one or more of a telephone network, a LAN, a MAN, a WAN, the Internet, and/or the like. User interface card 308 couples user input devices, such as keyboard 313, pointing device 307, and microphone 316, to the computer system 300. User interface card 308 also provides sound output to a user via speaker(s) 315. The display card 309 is driven by CPU 301 to control the display on display device 310.

[0055] Having broadly described a controlled environment information management system according to a preferred embodiment of the present invention, deployment and operation thereof will be described with respect to an exemplary controlled environment facility to better aid the reader in understanding the concepts of the present invention. Specifically, deployment and operation of information management system 110 with respect to an inmate facility, e.g., a prison, is described below. Accordingly, aspects of information management system 110 as may be particularly adapted for use in an inmate facility is described. However, it should be appreciated that the present invention is not limited to the particular exemplary features and functionality described herein.

[0056] Referring now to FIGURE 4, information management system 110 is deployed in an inmate facility and provides management of various aspects thereof, such as facility management (including tracking residents (inmates) from booking through release), staff management (including time and attendance management and personnel dispatching), call management (including placing and blocking calls, accounting for call charges, distance commerce, determining credit worthiness of individuals, establishing and maintaining accounts, and handling purchases of goods and services), and inmate management (including managing inmate information and tracking inmate activity). Information management system 110 as deployed in the inmate facility of FIGURE 4 further facilitates communications between a plurality of different individuals and/or groups 411-421. Such groups may include attorneys 411, friends and family 412, vendors 413, victims 414, bail bondsmen 415, judges 416, county agencies 417, police departments 418, other counties 419, states agencies 420, and/or federal agencies 421. Of course, the individuals and/or groups for which communications are facilitated are not limited to those illustrated in FIGURE 4 and may include any number of sources and/or destinations for data, including individuals and entities of different countries, various businesses and business types, non-profit organizations, clubs and social groups, law making bodies, etcetera.

[0057] Directing attention to FIGURE 5A, adaptation of information management system 110 of FIGURES 1 and 2A to provide features and functionality specifically useful with respect to an inmate facility is shown. Specifically, although operable substantially as described above, communication/transaction services 221 (here identified as a call application manager) has modules specifically adapted for use in inmate facilities associated therewith, including detainee calling 521, word search 522, and visitation and administration phones 523. Similarly, facility administration manager 222 (here identified as justice application manager) has modules specifically adapted for use in inmate facilities associated therewith, including detainee management system 525 and professional services 526, in addition to the aforementioned records management system 223 and computer aided dispatch 224. Video arraignment/visitation 225 (here identified as intelligent video manager) also has modules specifically adapted for use in inmate facilities associated therewith, including video arraignment 528, video visitation 529, and tele-medicine 530.

[0058] It should be appreciated that the information management system of the preferred embodiment is readily adaptable for use in various situations, as evidenced by information management system 110 of FIGURE 5A. Moreover, information management systems of the present invention are preferably expandable, upgradable, scalable, and configurable. For example, additional or alternative vertical applications and/or modules may be provided to information management system 110, as represented by future modules 524, 527, and 531 and future vertical application 227. Similarly, functionality such as shown and described in the above referenced patent applications entitled "System and Method for Reverse Billing of a Telephone Call," "System and Method for Affecting Inmate Conduct With Good Behavior Discount Telephone Rates," "Method and Apparatus for Exchanging Data Between A Primary Computer System And An External Computer System To Ensure Transactional Reconciliation Between The Systems," "Method for Determining an Entity Responsible for Billing a Called Party," "Three-Way Telephone Call Prevention System and Method," and "Optimizing Profitability in Business Transactions" may be incorporated into an information management system of the present invention, if desired.

[0059] Operation of information management system 110, and the aforementioned vertical applications and modules, with respect to the exemplary inmate facility preferably provides functionality in at least two particular areas. The primary areas of functionality provided according to the exemplary embodiment include justice intelligence/management and distance commerce.

[0060] Justice intelligence/management preferably provides for safety and security and ensures that the inmates, although they are incarcerated, are not committing or otherwise involved in additional crimes or other undesired activity. Justice intelligence/management may additionally or alternatively provide such functionality as managing the incarceration of the inmate, intelligence gathering/analysis, and management of facility personnel and resources. Accordingly, justice intelligence/management according to the preferred embodiment involves technology that is integrated within the facility (such as one or more of vertical applications and modules 221-226 and 521-531, connect middle-ware 231, information portal 241, network 120, and user terminals 121-1 through 121-N and 122-1 through 122-M) and outside the walls of the facility (such as network 130 and user terminals 131-1 through 131-P).

[0061] According to one aspect of the exemplary justice intelligence/management functionality, life of the inmates are managed from booking through release. Accordingly, facility administration manager 222, record management system 223, and detainee management system 525 may be implemented to facilitate booking of a new inmate, allowing input of an inmate's records, perhaps including data collected in the booking process such as identification photographs, handwriting and/or voice exemplars or other biometric data, one time while populating data fields for use by various aspects of the invention. Such information may be input into the system in a number of ways, including the use of keyboard, telephonic, PDA, kiosk, touch screen, voice, biometric data scanner, etcetera. This information may be utilized, supplemented, and/or revised by a variety of other applications or modules, such as aforementioned communication/transaction services 221, computer aided dispatch 224, video arraignment/visitation 225, and investigative tools 226.

[0062] Records management system 223 in cooperation with facility administration manager 222 preferably ensures the completion of fields of information desired for the proper management with respect to the inmate. For example, input of medical information and medical profiles may be solicited to ensure the proper administration of medications or physical therapy. Moreover, records management system 223 preferably provides for event tracking to ensure the proper activities have been performed, such as the dispensation of the aforementioned medications or physical therapy. Additional information accepted by facility administration manager 222 and/or tracked by record management system 223 may include gang affiliations (such as may be determined from the inmate's clothing and body art or the individuals to which the inmate places phone calls or receives visits), outstanding warrants and previous arrests (such as may be determined from communication with other government agencies etcetera via information portal 241), and contacts outside of the facility (such as may be determined from monitoring phone numbers dialed through communication/transaction services 221 or the individuals from which the inmate receives visits). Of course, other information for use in managing the incarceration of the inmate and/or in an intelligence gathering/analysis role may be collected, processed, and/or managed according to the present invention.

[0063] Preferably, information collected and managed according to the present invention is made available real-time to those systems, enterprises, and individuals requiring

such information. For example, information portal 241 operating in cooperation with record management system 223 may allow an individual, preferably after having cleared security protocols such as using biometric data, personal identification numbers, etcetera, to look at information with respect to the operation of the facility (such as to review revenues, current staffing and resource utilization, current resident population, and the like) and/or information with respect to residents thereof (such as information with respect to booking a particular inmate, the gang affiliation of a particular inmate, statistical information of inmates, the address of a friend or family member of a particular inmate, and the like). Additionally or alternatively, information portal 241 may allow members of the general public, such as individuals who live in and around the inmate facility, to access information on the facility or various individuals, such as information as it relates to sex offenders who might live in the community. According to a preferred embodiment, information portal 241 operates with respect to a browser interface for accessing such information.

[0064] According to another aspect of the exemplary justice intelligence/management functionality, computer aided dispatch 224 is provided to allow guards, patrol officers, investigators, and the like to lookup information about inmates and/or to facilitate the deployment of resources and personnel as needed. Accordingly, computer aided dispatch 224 of the exemplary embodiment integrates not only with facility administration manager 222 (such as for personnel availability from time and attendance records) and record management system 223 (such as for information with respect to particular inmates), but also with, in the case of a sheriff's department, for example, their on-street force so that the patrol officers can in fact look up information about inmates and investigators can share information with the patrol officers.

[0065] A further aspect of the exemplary justice intelligence/management functionality provides for enhanced access at any distance through video arraignment/visitation 225. For example, individuals disposed remotely with respect to the facility may be given virtual visitation access to an inmate using video visitation 529. Similarly, an inmate may be given virtual access to particular events and venues, such as court appearances and arraignment proceedings using video arraignment 528 and/or tele-medicine 530. Moreover, using integration

with respect to such aspects as facility administration manager 222 and/or record management 223, information with respect to the inmate may be made available to the attorney and judge.

[0066] A still further aspect of the exemplary justice intelligence/management functionality provides justice intelligence through investigative tools 226. Communication/transaction services 221, utilized in providing telephone calling from and to inmates, and video arraignment/visitation 225, utilized in providing visitation of inmates by friends and family, may provide detailed information with respect to an inmate, his activities, and those he associates with and facility administration manager 222 may collect detailed information with respect to an inmate and their activities. Accordingly, information management system 110 of the preferred embodiment has access to very rich investigative information. For example, from analyzing calls placed through communication/transaction services 221, it may be known who is making a call, who is the called party, and the content of the call may even be monitored and/or recorded. Investigative tools 226 may log all the calls so that an investigator may research them through an archive. Additionally or alternatively, investigative tools 226 may be provided access to internal and/or external criminal databases and/or other sources of useful information.

[0067] As discussed in detail below, the aforementioned informational vectors available to investigative tools 226 are preferably utilized not only to directly identify and harvest data from such internal and external databases, but also to spawn extended or indirect data identification, correlation, and/or harvesting of data, such as through recognizing crossing points or confluence of information vectors and initiating database hops for exploring additional, e.g., related or relevant, data. The databases from which such data is harvested may be unrelated (e.g., a calling services database, a commissary services database, and an inmate records database, all associated with a same facility or different facilities, which include disjoint information).

[0068] FIGURE 5B shows a graphical representation of the data framework provided according to one embodiment using information management system 110 of FIGURE 5A. In the data framework of FIGURE 5B, one or more of information management system 110 gather data (shown as data gathering 501), such as using call application manager 221, justice application manager 222, and/or intelligent video manager 225 to collect, compile, and collate

data passing through information management system 110 or otherwise available thereto. Data, including that which is gathered by information management system 110 and that which is otherwise available to information management system 110, may be stored (shown as data storage 502) in any of a number of databases, such as jail management databases (e.g., associated with justice application manager 222), communication and/or transaction databases (e.g., associated with call application manager 221), criminal databases (e.g., associated with governmental entities such as the FBI), public databases (e.g., associated with various public and/or governmental entities), and/or the like. One level of data processing by information management system 110 may provide data aggregation (shown as data aggregation 503), such as by parsing information relevant to individuals, events, locations, etcetera to provide data associations (e.g., compile dossiers, event timelines, etcetera). Another level of data processing by information management system 110 may provide data harvesting and database hopping (shown as data harvesting intelligence 504), such as by utilizing multi-dimensional, multi-informational vectors to directly identify and harvest data from the IT fabric, as well as to spawn extended or indirect data identification, correlation, and/or harvesting of data through recognizing crossing points or confluence of such vectors and initiating database hops for exploring additional data. A still further level of data processing by information management system 110 may provide artificial intelligence and predictive modeling (shown as predictive model 505), such as by applying fuzzy logic to recognize trends, similarities, correspondence, and/or other indirect links between otherwise independent information.

[0069] Investigative tools 226 may utilize speech to text technology, such as employed within word search 522, to monitor a call (including voice over internet protocol (VoIP) and plain old telephone service (POTS) calls) and/or video conference, preferably in real-time, for the presence of particular words or phrases. Similarly, investigative tools 226 may utilize word search 522 to monitor an e-mail and/or postal mail (such as may be converted to electronic format using optical scanner technology), preferably in real-time, for the presence of particular words or phrases. Such words or phrases may be those generally worrisome with respect to an inmate population, such as gun, bomb, and kill, or may be words or phrases identified as having importance with respect to a particular inmate, such as the name of a gang, the name of a sentencing judge in combination with threatening words, or the name of a victim. A facility may implement a personalized or customized dictionary for use at that facility or with

respect to particular inmates to detect particular words, such as local colloquialisms or slang commonly utilized in the area, if desired. When such words or phrases are detected, investigative tools 226 may page, or otherwise contact, an associated investigator to alert him to the situation. The investigator may be connected to the call real-time to allow him to listen to the conversation and/or a recording of the call may be provided to the investigator for further analysis. Additionally or alternatively, the investigator may be provided with a dossier or other information on the particular individual or individuals to the communication.

[0070] Investigative tools 226 may similarly monitor other aspects of an inmate's activities for use in an intelligence role. For example, the fact that a call was placed by a particular inmate to a particular known associate may indicate that a criminal act is likely being contemplated, thereby providing a predictive model for investigative reporting. Similarly, broadcast alerts may be provided to particular individuals upon the occurrence of a predetermined trigger, such as a particular event. According to one embodiment, a subscription process is proved for creating alerts, receiving dossier updates or update notices (e.g., via e-mail), receiving notice or the content of a communication when an identified individual is involved in the communication (e.g., phone bridge in real-time during a call or receiving a recording of a call), etcetera.

[0071] The use of predictive models using investigative tools 226 of embodiments of the present invention may analyze or identify patterns of various individuals, such as through use of calling information, purchasing information, e-mail and/or postal mail communications, known associates, known physical attributes (e.g., presence and content of tattoos, hair style, apparel color and style), addresses and/or areas known to particular individuals, particular key words from communications, and/or other information available to an information management system of the present invention, to identify a list of potential suspects for a particular investigation. For example, an investigator may input as many details as are known about a crime, such as a gang affiliation of a victim, a general description of an assailant, an area of the crime, and any names of individuals known to be involved or associated with the crime in any way, and fuzzy logic of investigative tools 226 may query various databases available thereto to identify and harvest data and to spawn extended or indirect data identification, correlation,

and/or harvesting of data, and compile a list of individuals having characteristics or attributes which predictive modeling suggest may be associated with the crime.

[0072] Preferred embodiments of the present invention may utilize report generators within the system to sort information according to a myriad of different report capabilities for providing information about inmates and their activities. For example, in addition to providing a list identifying potential suspects in response to an investigative query, embodiments of the present invention may present dossiers, such as may be compiled from available information, on the identified individuals.

[0073] It should be appreciated that, as communication/transaction services 221 of the preferred embodiment essentially provides the inmates' calling company, information management system 110 is in a unique position to obtain valuable investigative information, such as the inmate placing the call, the person who is accepting the call, and the content of the call. Moreover, information management system 110's deployment with respect to various aspects of controlled environment facility 100 provides a unique opportunity to collect additional information valuable to investigative aspects as well as provides a relationship with the facility and its personnel to facilitate assisting the investigator.

[0074] It should be appreciated that investigative tools 226 is not limited to use of information with respect to calls made outside of the inmate facility, such as utilizing detainee calling 521. For example, investigative tools 226 may utilize information with respect to visitation phones deployed within the inmate facility, such as by communication with visitation and administrative phones 523.

[0075] Additionally, the connectivity provided by information portal 241 of the preferred embodiment may further facilitate assisting the investigator, such as it might relate to counties communicating with counties, counties communicating with police departments, etcetera. For example, investigators within the walls of the inmate facility may be enabled to tap into the law enforcement or other databases at the federal level, the state level, and/or the local level.

[0076] Such connectivity may be utilized in providing broad outside functionality such as the warrant system of a preferred embodiment. Such a system may be utilized to

efficiently determine inmates for which warrants are outstanding in other jurisdictions as well as to facilitate expedient disposal of many such warrants. For example, if someone is out on the street, such as having skipped bail for failing to appear for a court appearance, and a warrant was issued for their arrest, the level of integration provided by a preferred embodiment information management system facilitates analysis of such outstanding warrants with respect to an inmate, such as at the time of booking. Accordingly, facility administration manager 222 may cooperate with record management system 223 and/or information portal 241 to determine if there is an outstanding warrant. Information portal 241 may connect to information management systems associated with other controlled environment facilities, may access countywide, statewide, or countrywide systems, etcetera to determine if the particular individual being booked in using facility administration manager 222 has any outstanding warrants. For example, the system may communicate with the courts to obtain such information as a county which has issued a warrant.

[0077] According to a preferred embodiment information management system, not only are steps taken to determine if warrants are outstanding with respect to a particular individual, but further steps are taken to dispose of the warrants where possible. Therefore, after having determined a county in which an outstanding warrant exists for a particular individual, the system may communicate with the appropriate county agency to notify them that this individual is now in custody. There may be communication to verify that the person for which the warrant was issued is in fact the one in custody, such as by the information management system transmitting fingerprint, photographic information, and/or other biometric data.

[0078] It should be appreciated that the notified county could be hundreds of miles away which, in typical situations, would require the county issuing the warrant to dispatch personnel to obtain custody of the individual, while the arresting facility holds the individual (perhaps for a number of days) at their expense. However, preferred embodiments of the present invention facilitate disposal of particular types of warrants without physical transfer of the inmate and perhaps without the arresting facility holding the inmate for substantial periods of time. Specifically, the distance commerce aspect of the preferred embodiment, described in further detail below, facilitates the collection of funds, such as from friends or family at remote locations, and the distribution of funds to the agency issuing the warrant as well as to the arresting facility. Accordingly, where the outstanding warrant may be satisfied by restitution

and/or modest incarceration times, the agency issuing the warrant may be enabled to collect restitution via the preferred embodiment distance commerce aspect and thus satisfy the warrant. Similarly, the arresting facility may be reimbursed for their expenses in the arrest and/or incarceration of the individual from such funds and/or from a portion of the amounts paid to the agency issuing the warrant.

[0079] Distance commerce preferably provides such functionality as establishing and maintaining an account associated with each individual inmate, allowing deposits into such accounts by friends and family (such as telephonically, at retail locations, and in person at the controlled environment facility), allowing an inmate to obtain goods and services (such as placing telephone calls and obtaining commissary items) using an associated account for payment, and making credit worthiness decisions for management of the accounts. Accordingly, distance commerce according to the preferred embodiment involves technology that is integrated within the facility (such as one or more of vertical applications and modules 221-226, connect middle-ware 231, information portal 241, network 120, and user terminals 121-1 through 121-N and 122-1 through 122-M) and outside the walls of the facility (such as network 130 and user terminals 131-1 through 131-P).

[0080] From the above it should be appreciated that information management systems of the present invention may implement data networking, whether with other information management systems or other data processing systems, to provide robust functionality as described herein. FIGURE 6A shows architecture 60 according to one embodiment, providing an information network configuration including justice information network 61. Justice information network 61 of the illustrated embodiment provides a communication architecture wherein a plurality of information management systems of the present invention are in communication for allowing access to data from a plurality of locations, by a plurality of divergent users having different levels of authority and having different enterprise affiliations. For example, information management systems may be disposed at any of a number of locations, facilities, businesses, etcetera, such as government offices 62-a through 62-d, investigative services 63-a through 63-d, and/or prison facilities 65-a through 65-d, with justice information network 61 facilitating information communication therebetween. User terminals may be disposed at any of a number of locations, facilities, businesses, homes, etcetera,

such as government offices 62-a through 62-d, investigative services 63-a through 63-d, and/or prison facilities 65-a through 65-d, service providers 66-a through 66-d, and/or homes/businesses 67, and may include mobile and remote terminals, e.g., investigators on the street and terminals in patrol cars, to allow users to access, input, modify, query, etcetera information managed by one or more information management system.

[0081] In addition to the above identified facilities, agencies, business entities, and individuals coupled to justice information network 61 discussed above, FIGURE 6A shows systems providing data and/or processing useful according to the present invention. For example, in addition to the aforementioned information management systems of the present invention, database 68 (e.g., a public database such as PUBLICDATA.COM) is shown coupled to justice information network 61 to provide an additional source of data to the users and systems thereof. Similarly, communication system 66-b (e.g., telephony message delivery system, interactive voice response system, electronic mail transmission system, etcetera) is shown coupled to justice information network 61 to provide a communication gateway useful therewith.

[0082] Systems of architecture 60 preferably use open Internet technology and standards which link diverse and incompatible systems. For example, various user terminals, such as those implemented by users only casually related to the justice information network or systems thereof (e.g., friends and family members of an inmate, individuals and private businesses outside of the justice industry such as a pawn shop, victims, etcetera), may implement a web browser, as is well known in the art. Additionally or alternatively, various user terminals, such as those implemented by users more directly related to the justice information network or systems thereof (e.g., individuals and businesses directly involved in the justice industry such as prison staff, police, judges, prison commissary, etcetera, individuals and private businesses having a close or particular relationship with the justice industry such as businesses accepting payments for inmate accounts, businesses providing services such as video visitation, private detectives, etcetera), may implement an interface customized for use with the justice information network, such as a customized browser type interface. It should be appreciated that both such interfaces may be adapted to interface with biometric data collection devices, such as microphones (e.g., for voice prints), fingerprint scanners, iris and/or retina scanners, hand scanners, cameras (e.g., for face recognition), etcetera, and/or to otherwise use biometric data.

[0083] Preferably, a wide range of facilities, agencies, business entities, individuals, and/or systems are provided access to and participate in architecture 60 of the preferred embodiment. According to one embodiment of the present invention, justice information network 61 facilitates peer-to-peer information communication between a plurality of information management systems, thereby making vast amounts of information stored with respect to various locations available to particular users of architecture 60. Accordingly, architecture 60 of a preferred embodiment provides a distributed network application platform for managing and sharing information, such as inmate information, between multiple users and facilities.

[0084] For example, in the illustrated embodiment District Attorney/Courthouse 62-a is linked to justice information network 61, such as to provide data access and information exchange for the courts, judges, attorneys, etcetera. Additionally, County A Courthouse 62-b, Police Department 63-a, and County A Jail 65-a are shown interconnected and linked to justice information network 61 in the illustrated embodiment, such as to provide data access and information exchange for courts, judges, attorneys, sheriff's departments, constables, jail staff, inmates, etcetera. Similarly, County B Office 62-c, Police Department 63-b, County B Courthouse 62-c, and County B Jail 6-b, are shown interconnected and linked to justice information network 61 in the illustrated embodiment, such as to provide data access and information exchange for county officials, courts, judges, attorneys, sheriff's departments, constables, jail staff, inmates, etcetera. Also shown connected to justice information network 61 in the illustrated embodiment are private businesses 66-a, 66-b, 66-c, and 66-d (e.g., wire transfer service providers providing money and/or message transfer services, pawn shops providing information with respect to received items, credit facilities providing information with respect to individuals and/or funding for transactions, merchandise providers, etcetera), incarceration facilities 65-a, 65-b, 65-c, and 65-d (e.g., federal prison, military stockade, municipal jail, county jail, state penitentiary, etcetera), investigative agencies 63-a, 63-b, 63-c, and 63-d (e.g., police department, sheriff's department, National Security Agency (NSA), Federal Bureau of Investigation (FBI), etcetera), and individuals/businesses 67 (e.g., family and friends of an inmate, victims, inmate's rights activists, etcetera).

[0085] Directing attention to FIGURE 6B, further detail with respect to a preferred embodiment configuration of architecture 60 is shown. In the embodiment illustrated in FIGURE 6B, justice information network 61 comprises hub 610 providing information communication between nodes 621-624 and user terminals 631-632. It should be appreciated that the present invention is not limited to the particular number of user terminals, hubs, and/or nodes shown in FIGURE 6B, but rather the particular configuration illustrated is merely exemplary of a possible configuration according to the teachings of the present invention.

[0086] Hub 610, nodes 621-624, and user terminals 631-632 may comprise computer systems, such as computer system 300 described with respect to FIGURE 3. For example, according to one embodiment of the present invention, hub 610 comprises a computer system or computer systems based upon the Intel PENTIUM platform of CPUs configured to operate in a server capacity under control of the Linux operating system, as is well known in the art. Such a server configuration may have proprietary and/or open source software operable thereon to provide operation as described herein. Nodes 621-624, like hub 610, may comprise computer systems based upon the Intel PENTIUM platform of CPUs and having information management functionality associated therewith (e.g., call applications manager (CAM), also referred to herein as communication/transaction services, and/or justice applications manager (JAM), also referred to herein as facility administration manager) as described above with respect to FIGURES 1, 2A, and 2B. User terminals 631-632, which again may comprise computer systems based upon the Intel PENTIUM platform of CPUs or other processor based systems (e.g., PDAs, pocket PCs, cellular telephones, etcetera), preferably have browser based or other client software operable thereon to provide operation as described herein.

[0087] It should be appreciated that nodes 621-624 may be deployed at any number of locations, such as in association with any of government offices 62-a through 62-d, investigative services 63-a through 63-d, and/or prison facilities 65-a through 65-d shown in FIGURE 6A, and/or may be mobile. Similarly, user terminals 631-632 may be deployed at any number of locations, such as in association with any of government offices 62-a through 62-d, investigative services 63-a through 63-d, and/or prison facilities 65-a through 65-d, service providers 66-a through 66-d, and/or homes/businesses 67 of FIGURE 6A, and/or may be mobile. Hub 610 may also be deployed at a variety of locations, such as at a central location associated

with a service provider facilitating the deployment and interconnection of information management and retrieval systems of the present invention.

[0088] Communication links 641-644, providing information communication between hub 610 and nodes 621-624, and communication links 651-652, providing information communication between nodes 621-624 and user terminals 631-632, may comprise any number of links, such as the PSTN, cellular networks, PCS networks, the Internet, cable transmission systems, satellite communication systems, electrically conductive transmission lines, fiber optic links, wireless LANs, LANs, MANs, WANs, intranets, extranets, and/or the like.

[0089] Although user terminals 631-632 are illustrated coupled to respective ones of nodes 623-624 and nodes 621-624 are illustrated coupled to hub 610, it should be appreciated that hub 610 may facilitate communication between any of nodes 621-624 and user terminals 631-632. For example, hub 610 may comprise various indices or lookup tables (LUTs) adapted to identify particular systems storing information relevant to a query from another system or user, and thus direct a connection between such systems and users. The connections provided in response to such queries may be provided through hub 610 (e.g., a user at user terminal 631 connected to node 624 may be coupled to node 622 via hub 610 using links 651, 644, and 642). Such a connection via hub 610 may be transparent to the users, thereby providing a virtual direct link between particular systems of architecture 60. Additionally or alternatively, hub 610 of embodiments of the present invention may facilitate more direct connections between systems and/or users (e.g., after querying hub 610 for identification of a system having information relevant to a query, node 624 may establish a link, such as via the Internet or PSTN, to the identified system, such as to connect to node 622 via a link (not shown) which does not include hub 610).

[0090] It should be appreciated that a plurality of different systems and information communication links may be implemented in providing a justice information network of the present invention. For example, systems of County A Courthouse 62-b, Police Department 63-a, and County A Jail 65-a may be interconnected and/or connected to justice information network 61 by a telephone line (or wireline or wireless), the Internet, a LAN connection, and/or the like. According to one embodiment of the present invention, these corresponding entities may utilize a same link to justice information network 61. For example, each of these corresponding entities

may share the use of an information management system and utilize an interface thereof for linking to justice information network 61. Additionally or alternatively, these entities may utilize separate links for connecting to justice information network, such as where each such entity has an information management system associated therewith or where other systems of such entities are otherwise adapted for communication with justice information network 61.

[0091] Moreover, various ones of the entities illustrated in FIGURE 6A may utilize different systems for accessing justice information network 61. For example, various ones of the entities, such as inmate facilities 65-a, 65-b, 65-c, and 65-d, may employ an information management system of their own, preferably having a variety of user terminals connected thereto. Alternatively, various ones of the entities, such as individuals/businesses 67 and service providers 66-a, 66-b, and 66-c, may employ user terminal equipment adapted to interface with information management systems of the present invention. As mentioned above, such user terminals may be operable under control of a web browser interface, a customized browser interface, or other user interface as desired.

[0092] In operation according to a preferred embodiment, users of justice information network 61 will download a browser, such as one of the aforementioned browsers, to a user terminal, such as user terminals 631-632. The users may then use the browser to connect to an appropriate hub, such as a particular one of hubs 621-624 deployed at a facility to which the user is associated, and/or to connect to a justice information network hub, such as hub 610. Using the browser interface, users are preferably enabled to perform search engine based searches for desired information, such as inmate dossiers, call records, transaction records, etcetera, as stored throughout architecture 60. For example, nodes 621-624 may continually monitor justice applications manager functionality and/or call applications manager functionality to build accurate and current dossiers for each inmate associated therewith. Hub 610 may index inmate dossier information from nodes 621-624, such as continually or periodically. For example, nodes 621-624 may periodically send metadata derived from monitoring justice applications manager functionality and/or call applications manager functionality to facilitate advanced searching. When a query is issued via one of user terminals 631-632 by an authorized user and received at hub 610, the search query may be pointed to one or more of nodes 621-624 for the relevant information.

[0093] Functionality in addition to or in the alternative to that described above may be provided by systems of embodiments of the present invention. For example, hub 610 and/or nodes 621-624 may provide desktop application deployment, such as to distribute appropriate copies of the aforementioned browsers and/or updates thereto, to appropriate ones of the user terminals. Nodes 621-624 may provide such functionality as facility intranet management, such as using a content management server.

[0094] Preferably, agencies, individuals, etcetera can establish partner settings to establish what type of information is to be shared and to whom such information is to be shared, such as by establishing multi-level security with respect to particular resources. For example, when an information management system of the present invention, such as such a system disposed at a County A Courthouse 62-b, is coupled to justice information network 61, a user thereof may provide information as to what type of information County A Courthouse 62-b is agreeable to making available via justice information network 61 and, perhaps, information with respect to particular entities, users, and/or groups which are to be allowed access. The shared information could include, for example, call detail records, inmate dossiers, buying habits, credit, history of an individual's purchases, calls, etcetera. Those identified as authorized to access the information might include similar or corresponding facilities, such as Police Department 63-a, County A Jail 65-a, County B Office 62-c (and perhaps its corresponding facilities), particular individuals, such as management or staff of County A Courthouse 62-b, families and victims of inmates of County A Jail 63-a, and/or the like. Various levels of access may be assigned to one or more of the foregoing and security features implemented, such as network firewalls, secure communication protocols, data encryption and authentication, digital certificates, and/or the like, to protect against unauthorized access.

[0095] Preferably, each of the illustrated entities and/or their associated systems will have been assigned a specific security level(s) (e.g., peer group) and/or an access authorization(s) (e.g., specific data, files, systems, services, etcetera for which access is permitted). For example, based on an assigned access authorization, a particular user might have access to data files of a particular type or content maintained by any of the systems coupled to justice information network 61. Similarly, based on an assigned peer group, a particular user might have access to particular systems and/or entities (e.g., a community defined by a particular

county, state, jurisdiction, or enterprise affiliation) coupled to justice information network 61. Accordingly, embodiments of the present invention provide the best security features of centralized client/server models with the powerful data sharing technologies of peer-to-peer computing.

[0096] It should be appreciated that recognition of security level and/or access authorization may be based in part upon a particular terminal device used, an address or network upon which a user terminal is interfaced with the justice information system, a personal identification number (PIN), personal access number (PAN), or other information input by a user, biometric data sampled from a user, and/or the like. Embodiments of the present invention may utilize multiple techniques for determining such security or access privileges, such as by requiring access to particular files to be initiated from a terminal having a particular media access control (MAC) address and requiring the user thereof to submit to verification via entry of a PIN and/or biometric data input. Similarly, multiple techniques may be utilized for increasing the confidence with respect to any particular security or access verifier, such as implementing both voice print and fingerprint verification of a user.

[0097] Security authorization according to embodiments of the present invention may be implemented at various points in the system interaction. For example, a user may be required to provide identification information, e.g., PIN, biometric data, etcetera, when accessing a user terminal, such as any of user terminals 631 and 632. Additionally or alternatively, information management and retrieval systems, such as any of nodes 621-624, may provide access validation routines before conducting a data session and/or prior to providing access to information, whether with respect to a local or native user and/or a remote or foreign user/system. Similarly, justice information network 61 may provide access validation routines, such as before hub 610 provides information with respect to which systems desired information is located.

[0098] FIGURE 7 shows one embodiment of hierarchical access and security of data provided by operation of a preferred embodiment of the present invention. In the illustrated embodiment, highly secure or otherwise highly sensitive information is shown at the top of stack 70. For example, criminal data information, such as might comprise criminal data records, "wrap" sheets, booking information, etcetera, might comprise a level of most secure data.

Access to this level of information might be tightly controlled and, therefore, only made available to particular entities closely affiliated with justice information network 61, such as jails, certain law enforcement personnel, some prosecutors, etcetera. For example, if one inmate had been incarcerated in a county in the western side of the state and two months later is arrested and incarcerated in a county on the eastern side of the state, those records could be easily retrieved, allowing the arresting police department to quickly determine if this person had been housed in a different part of the state. Preferably, the system also provides access to other criminal databases, whether they be local, state or federal, based on pre-established security/access levels for both the stored information and for the accessing user.

[0099] Also shown in hierarchical stack 70 is investigative information, which may also be particularly sensitive. Such investigative information may include call records and recordings of inmates, and may be contained in any one of the databases from any detention facility etcetera. Such investigative information could provide data with respect to called party numbers that could be sorted, shared and reviewed by facilities across the country to see if there are matches on called numbers. For example, by cross-checking phone records from one jail against phone records from other jails connected via justice information network 61, law enforcement officials may determine that several inmates in different facilities routinely place calls to the same number (or receive e-mail, postal mail, or other messages from the same sender). Such data analysis may lend to the apprehension of an escaped inmate, or may allow authorities to prevent such an escape. By cross-checking 3rd party "community of interest" records, such as may be provided by public database 603, investigators may obtain leads to solve existing investigations, or to check nationwide fingerprint or other information. It should be appreciated that operation of a preferred embodiment of justice information network 61, investigators are enabled to easily share criminal investigation information on a peer to peer basis across political and geographical boundaries.

[0100] Hierarchical stack 70 of the illustrated embodiment further includes court data, which may comprise somewhat sensitive information that is widely available within the justice industry as well as public or semi-public information. Such court data may comprise misdemeanor and outstanding warrant information which could be accessed by a patrol officer, or by someone within a facility. For example, a patrol officer at the time of arrest, or an

investigator working a particular case could routinely check for outstanding misdemeanor warrants, or even traffic violations within the county, the state or the country using the justice information network of the preferred embodiment. Additionally, court data may comprise information with respect to victims, such as to provide notification of an inmate's release, inmates' family and/or attorney, such as to provide notification of hearings etcetera, areas into which a released inmate has located, such as to comply with legal disclosure and notification requirements, and/or the like. For example, the system could be used for notification of an upcoming court date which, since many people miss court dates because of poor notification practices, this could increase the percentage of attendees.

[0101] Also shown in hierarchical stack 70 is commerce data, which may comprise both sensitive and public information. For example, commerce data may be utilized to facilitate commerce among peers in different jurisdictions. This could facilitate the selling, transfer or bartering of surplus goods and, if desired, could be used to consolidate purchases across facilities for volume discounts, or for the efficient utilization of resources, such as guards, vehicles, etcetera. Additionally, commerce data may comprise information with respect to individuals pre-paid and post paid accounts, such as for use in providing calling services, distance commerce, commissary purchases, and the like as discussed above.

[0102] Hierarchical stack 70 further includes interactive data, such as may comprise peer-to-peer communications and/or relationships. Using such data, such as may comprise electronic bulletin boards, chat rooms, user groups, news groups, and/or the like, facilitating communication and interaction among the users of the justice information network, such as between sheriffs of different counties, investigator to investigator communication, etcetera such as for sharing best practices and other information. Bulletin boards could be posted in terms of issues or situations occurring in a jail that other jailers might want to know, such as to be able to spot that pattern of behavior occurring in different facilities.

[0103] Also included in hierarchical stack 70 of the illustrated embodiment is general information, such as may be provided general availability, whether universally or within particular groups of users. Such general information made available to a particular group of users may include justice industry issues or news stories that might be relevant to other jails across the country. General information made universally available may include visitation hours

at a particular facility, merchants participating in distance commerce services, merchants providing video visitation services, etcetera.

[0104] It should be appreciated that utilization of and access to the above information may be not only with respect to particular entities or users, but may also be with respect to particular systems. For example, the aforementioned notification provided to various individuals could be accomplished by a system automatically placing an outbound phone or e-mail call or posting a notice on a web site, based upon information pulled or pushed from various ones of the systems connected to justice information network 61. Such a phone call might be automatically dialed and the message delivered without human intervention by communication system 66-b of FIGURE 6A. Communication system 66-b may be available to many different facilities for use in providing such services. According to a preferred embodiment, communication system 666-b would periodically poll databases maintained by each facility (or participating facilities) and would place calls, or send other message, as needed.

[0105] Using such technology, whether deployed centrally or locally to a particular facility, family and friends of inmates could be notified of the status of an inmate, again without human intervention, if desired. Additionally or alternatively, by providing a password or other identifier to a family or friend, such individuals may be enabled to call into a telephone system (or go online) to obtain specific prisoner updates. This is all accomplished using a high level of integration between the systems used at each facility coupled to justice information network 61. In contrast to the operation of such embodiments of the present invention, today wardens and their staff may field many calls from family and friends seeking updates on the health or location of a particular inmate.

[0106] Directing attention to FIGURE 8, an embodiment of a customized browser interface, browser 80, adapted to provide operation as described herein is shown. It should be appreciated that the present invention is not limited to use with respect to any particular user interface and, therefore, that browser 80 illustrated in FIGURE 8 is merely exemplary of an embodiment of the present invention. Embodiments of the present invention may provide operation as described herein, including advanced querying and data harvesting resulting from informational vector analysis, using any number of user interfaces, including a standard web

browser interface such as that of Microsoft's INTERNET EXPLORER or Netscape's NAVIGATOR.

[0107] Browser 80 of the illustrated embodiment provides a browser window similar to that common in computing environments today. However, browser 80 is specifically configured to provide interfaces with various aspects of information management systems of the present invention and, therefore, includes vertical application buttons (e.g., inmates, staff, transportation, investigative, e-mail, chat phones, and administration) to facilitate simplified access to various functionality for which a particular user might be authorized. Browser 80 of the illustrated embodiment further includes application buttons corresponding to applications not unique to the information management systems of the present invention (e.g., web browser and calendar) to facilitate integration with functionality useful according to the present invention, although perhaps not directly provided thereby. Selection of any of these buttons preferably results in the browser window displaying information pages associated with the selected application, such as to display login screens, query screens, data presentation screens, etcetera.

[0108] The browser window of browser 80 illustrated in FIGURE 8 shows an administration page to allow for the establishment of partner settings, including multi-level security, such as may be automatically displayed when initially configuring a system associated therewith and/or as may be displayed when selecting the administration button (perhaps after navigating several option screens). When the user of browser 80 selects partnership settings 81, the screen of one embodiment will preferably change to screen 90 of FIGURE 9. Screen 90 presents several items 91 which allow the user to select the data types the user wishes to share with other partners. The system could have as many screens as desired to set up the information to set up the security levels, to set up passwords and so forth. One such setting is setting 92 which controls peer groups for the data in a particular sub-database.

[0109] Using browser 80, call detail records, inmate photographs, inmate dossiers, inmate emails and any manner of data can be shared, without regard to physical location. Moreover, according to a preferred embodiment, relevant data may be presented by browser 80 such that the use of the peer-to-peer system configuration is transparent to the user. For example, browser 80 may allow for a search on a particular inmate, or perhaps on called phone numbers. The search could be based on name, social security number, state of crime, residence,

etcetera. However, it should be appreciated that harvesting of information from the information network, e.g., justice information network 61 of FIGURE 6A, according to the present invention is not limited to results directly matching a query. As discussed with respect to the queries of FIGURE 10 and various data presentations of FIGURES 12-14 below, informational vectors may be utilized to spawn extended or indirect data identification, correlation, and/or harvesting of data, such as through recognizing crossing points or confluence of information vectors and initiating database hops for exploring additional, e.g., related or relevant, data. Once the target and/or other relevant data is located in one, or more, databases connected via justice information network 61, the user could, if the user has the proper search level and access privileges, view harvested information on browser 80, such as inmate profile information including call billing information associated with that inmate, inmate property, medical records, photographs, video clips, etcetera as may be stored by various systems coupled to the justice information network.

[0110] Directing attention to FIGURE 10, an embodiment of a information search screen such as may be presented by an investigative application of an information management system is shown. Specifically, FIGURE 10 shows advanced search screen 1000 which could be used by an investigator where the investigator can select any of a number of search criteria information vectors 1001 and/or fill in blanks 1002 of the search form. Button 1003 may be utilized to begin the search, with section 1005 showing the progress of the search and/or how many records have been found. A user, e.g., an investigator, may utilize search status information, such as displayed by section 1005, to determine whether to modify the search by adding or deleting information, or could view the records by enabling button 1004. In addition to searching local databases available to the investigator, the search initiated by search screen 1000 of a preferred embodiment searches various databases coupled to justice information network 61 that the user has a security and/or access level sufficient to access and which are implicated by the search criteria, whether directly or indirectly (e.g., information vector intersections suggesting existence of further related data available from justice information network 61).

[0111] According to embodiments of the present invention, a user may provide information with respect to data sources to be searched, such as by type (e.g., criminal databases, court records, jail records, etcetera), by location (e.g., all available databases in the county, state,

etcetera), and/or by affiliation (e.g., all sheriff's association, federal, etcetera). However, preferred embodiments of the present invention implement an information vector based search approach to both directly identify and harvest data from the network resources, e.g., systems of justice information network 61, and to spawn extended or indirect data identification, correlation, and/or harvesting, such as through recognizing crossing points or confluence of such vectors and initiating database hops for exploring additional, e.g., related or relevant, data.

[0112] It should be appreciated that the present invention is not limited to the particular search criteria information vectors and/or fill in blanks illustrated in FIGURE 10. For example, embodiments of the present invention utilize such information vectors as contacts information, inmate information, suspect information, end party information, flow of funds information, initial contact information, public data information, etcetera. Contacts information vectors may comprise such vectors as phone numbers, e-mail addresses, time of call or message, length of call, content of call or message, location of call or message end points, etcetera. Inmate, suspect, and end party information vectors may comprise such vectors as personal identification numbers, biometric data, name, address, relatives, friends, visitors, crime data, prior and/or current incarceration data, occupation, income, etcetera. Flow of funds information may comprise such vectors as items purchased, amounts and/or times of deposits, amounts and/or times of expenditures, identification of persons making deposits to accounts, identification of entities purchases are made from, identification of banking institutions used, account information, etcetera. Initial contact information may comprise such vectors as end parties contacted within a predetermined time of an event (e.g., incarceration), parties identified as contacts by an individual, etcetera. Public data information may comprise such vectors as court cases, prior arrests, credit scores, property records, tax records, etcetera. Such information vectors may be multidirectional and/or multidimensional.

[0113] Multidirectional information vectors may spawn searches along a number of threads and/or present a user with an opportunity to select additional criteria for controlling the direction of the search. For example, the "Phone Number" information vector of information vector search criteria 1001 may search available data sources for phone numbers which have placed a call to the identified individual, phone number to which the identified individual has placed calls, phone numbers associated with the identified individual (e.g., residence phone

number, business phone number, cell phone number, etcetera), phone numbers associated with friends and relatives of the identified individual, etcetera. Selection of the "Phone Number" information vector of information vector search criteria 1001 may present a user with options for selecting any or all such information vector directions to facilitate formulating a query of the network resources helpful to the user.

[0114] Multidimensional information vectors may harvest information from the network resources which is identified indirectly or in multiple dimensions from a particular query's information vectors. Continuing with the above example of use of the "Phone Number" information vector, embodiments of the invention not only collect phone numbers, but process this information to spawn additional database hops, in additional dimensions, for data harvesting. For example, phone numbers initially harvested as a result of use of the "Phone Number" information vector may be used for dips into telephony system databases to obtain billing name and address (BNA) information. The multidimensional query spawned by the information vector may not stop at this second dimension data harvest, but may continue to identify and obtain relevant data in other dimensions. For example, an embodiment may utilize name information obtained in the second dimension query to spawn a third dimension query for a social security number associated with that name. A forth dimension query may subsequently be spawned to determine additional information, e.g., credit history, personal property, real property, bank accounts, etcetera, as may be collected using social security number information.

[0115] Embodiments of the present invention may operate to recognize intersections or confluence of data associated with various information vectors for spawning further data harvesting and/or for identifying the more relevant data reaped from the harvest. For example, a name provided by BNA information of one of the phone numbers may also be a name identified by the "Prison or Jail" information vector as having been or currently incarcerated in the same inmate facility as the identified individual. The intersection of information vectors may be useful for spawning additional data queries, such as to determine if both persons were in the facility at the same time, have a common gang affiliation, have any common contacts, etcetera. Embodiments of the present invention spawn and follow these data queries to provide the aforementioned multidimensional data queries.

[0116] For example, a suspect information vector may be utilized to search across multiple facilities to determine if the suspect has been incarcerated in different facilities across the country. Such information might be particularly useful in determining what information the suspect provided when booked at each such facility, thereby facilitating a more complete picture than that available from information given with respect to a most recent incarceration. An end party or common end information vector may be utilized to recognize that an individual called by an inmate in a particular facility has also been called by other inmates, whether incarcerated in the same facility or other facilities. Such information might be particularly useful in determining that such an end party is dealing drugs or is otherwise involved in miscreant behavior. Additionally or alternatively, an end party or common end information vector may be utilized to identify a household called by an inmate, such as to determine who resides at that location, where the location is, etcetera. An initial contact information vector may be utilized to identify a party or parties contacted by an individual after an event. Such information might be particularly useful in confirming the identify of the individual, e.g., by comparing such initial party information to contact information provided by the individual and/or initial contact information of previously incarcerated individuals. For example, because an individual will tend to contact a same relative, friend, business associate, attorney, bailbondsman, etcetera, a comparison of an initial contact made by a subject to initial contacts made by prior inmates, whether at a current facility or others, may be useful in detecting that an identity of the subject given at booking in the current facility is false.

[0117] It should be appreciated that utilization of information vectors according to the present invention is not limited to their association with a particular individual or individuals. For example, a communication information vector may be utilized which is not individual specific, but rather sets forth crime data or other information relevant to a crime being investigated to identify individuals of interest. According to one embodiment a communication information vector may contain a key phrase such as "Al Qaeda" to identify intersection of suspect information vectors with the communication information vector, thereby identifying individuals of interest with respect to the investigation. Of course, such a search according to the present invention may include a multidimensional aspect, such as to identify those individuals meeting the above criteria which have placed or received phone calls to/from a same number, thereby suggesting some sort of relationship between the individuals.

[0118] Fuzzy logic is employed according to embodiments of the present invention in order to identify links between seemingly independent data where no direct links are apparent. For example, continuing with the above example of the "Phone Number" information vector, a group of persons (e.g., a "community group") may be identified with respect to a particular individual. Although this group of persons may be at least in part identified directly from the "Phone Number" information vector, fuzzy logic may be employed with respect to this group to harvest related data. For example, information regarding persons in the group may be identified which looks to the neighborhood the persons reside in, e.g., their residential addresses indicate a "bad" area of town, their employment histories indicate transient behavior, their criminal histories indicate a trend or pattern, etcetera. This information, which initially may have appeared unrelated to the subject individual, may be highly indicative of such things as gang affiliation, conspiracies to commit a crime or other miscreant behavior, the likely social behavior of the individual, etcetera. Accordingly, embodiments of the present invention combining and correlating such data may be utilized to provide a matrix of data which provides a very robust picture of the subject individual, as is described further with respect to FIGURES 12 and 13.

[0119] It should be appreciated that the aforementioned fill in blanks may be utilized refining queries with respect to information vectors, such as to select particular directions of a multidirectional information vector. For example, continuing with the "Phone Number" example, a fill in blank may be utilized to select "called numbers" as a direction of interest with respect to the information vector. Additionally or alternatively, such fill in blanks may be utilized to identify crossing points of interest or confluence for such information vectors, for initiating database hops for exploring additional data. For example, a fill in blank may be utilized to provide information with respect to a particular crime, e.g., modus operandi, type of crime, place of crime, etcetera, for identifying those individuals turned up using the "Phone Number" information vector having aspects of a criminal record similar to that of a subject individual.

[0120] It should be appreciated that the present invention is not limited to use of any particular information vectors, vector crossing points or confluence, or even technique for selecting information vectors or their crossing points. Embodiments of the invention, for

example, may implement pull down menus for providing the aforementioned fill in blank information.

[0121] Screen 1101 of FIGURE 11 shows one record resulting from the search initiated by screen 1000 of FIGURE 10. Block 1103 lists all of the records matching the search criteria set forth in blanks 1002. Block 1102 allows for refinement of the search results, if desired. Block 1104 provides various control buttons allowing a user to select display of particular data of a selected record and/or to select operations to be performed with respect thereto. Various information with respect to a selected record may be displayed. For example, in the subject has ever been incarcerated in a facility coupled to information network 61, information such as picture 1105, name and other information 1106, and booking information 1107 may be displayed. Screen 1101 could have different types of information and can allow the user to bring up call records, medical records, events, photos, etcetera. For example, biometric data, such as a voice print, finger print, iris print, retina print, and/or the like may be displayed or otherwise made available as a result of the search. Such information may be presented in multimedia format, such as by playing the content of a recorded phone conversation retrieved by a query.

[0122] As discussed above, information retrieved and/or presented according to embodiments of the present invention is not limited to that directly resulting from query parameters, such as the dossier type information associated with a subject of a search shown in FIGURE 11. FIGURE 12 shows various data presentations that may result from a particular search. For example, advanced search screen 1200, such as may correspond to advanced search screen 1000 discussed above, may retrieve relevant data from a number of systems coupled to justice information network 61. Depending upon the purpose of the query, a user may select particular presentations of the data, including textual presentations, audio presentations, video presentations, graphical presentations, and combinations thereof. Dossier screen format 1201 may be preferred to provide detailed information with respect to a particular individual. However, communication links screen 1202 might be selected to provide a graphical representation of the results of database hopping associated with a multidimensional communication information vector. Specifically, screen 1202 shows not only communications

participated in by a subject individual, but also shows communications participated in by those having communicated with the subject individual.

[0123] Directing attention to FIGURE 13, more detail with respect to a call links screen of an embodiment of the present invention is shown. Communication links screen 1301, such as may correspond to communication links screen 1202 discussed above, allows an investigator to look at the network or "community group" of a particular subject, such as subject 1300, to see who that subject is calling, who that subject is e-mailing, who is calling the subject, who is e-mailing the subject, and who is visiting the inmate. Selection of the icons (shown here as balls) representing the various individuals of the subject's network or community group may provide detailed information with respect to that particular individual, such as shown in dossier screen 1201 of FIGURE 12.

[0124] Screen 1301 of the embodiment illustrated in FIGURE 13 provides graphic illustration of links between the subject and other individuals. Various details may be represented graphically, such as through using a line thickness and/or color of line forming the links between various individuals representative of the number and/or frequency of contacts made between the individuals. For example, the link between subject "Frank" and contact "Jerry" is relatively thick, perhaps indicating a large number of individual contacts or a high frequency of contacts. In contrast, the link between subject "Frank" and contact "Joan" is relatively thin, perhaps indicating a small number of individual contacts or a low frequency of contacts.

[0125] The links of the illustrated embodiment further include graphical information in the form of icons showing the form of communication. For example, phone icon 1303 indicates one or more phone calls between subject "Frank" and contact "Bill." Similarly, page icon 1304 indicates one or more written communications (e.g., e-mail, traditional mail, pager communication, etcetera) between subject "Frank" and contact "Bill." These icons may not only provide a readily identifiable visual representation of the types of communications associated with the link, but may also provide information with respect to the communications. For example, by selecting phone icon 1303, an investigator may be presented with information listing the time of the communication, the duration of the communication, an originating number, a terminating number, etcetera for the calls of that particular link. Additionally or alternatively,

the content of one or more of these calls may be made available to the investigator by selection of phone icon 1303 or the aforementioned list of calls. Similarly, by selecting page icon 1304, an investigator may be presented with information listing the time of the communication, the type of communication, the mode of communication, an addressor, an addressee, etcetera. Additionally or alternatively, the content of one or more of these messages may be made available to the investigator by selection of page icon 1304 or the aforementioned list of communications.

[0126] It should be appreciated that the detail presented graphically according to embodiments of the present invention is not limited to that illustrated in FIGURE 13. For example, physical visits may be represented by a person icon (not shown), such that selection of the icon provides information with respect to the visit and/or photographs etcetera of the visit/visitor.

[0127] The information represented in FIGURE 13 not only readily presents the multidirectional aspect of contacts information vectors, but also illustrates the presentation of multidimensional data harvesting. For example, although having no direct link to subject "Frank," contact "Friend" is presented in screen 1301. Contact "Friend" has links to contacts "Jerry" and "Cousin Henry" which themselves have direct links to subject "Frank." Contact "Friend" may be included as information relevant to a search regarding subject "Frank" merely because of the intersection of contacts information vectors associated with contacts "Jerry" and "Cousin Henry" which are each a contact of subject "Frank" (e.g., both "Jerry" and "Cousin Henry" have direct contact with Friend and therefore "Friend" may provide information useful with respect to an investigators analysis of "Frank"). Alternatively, contact "Friend" may be included as information relevant to a search regarding subject "Frank" because of additional or alternative relevancy indicators, such as the number of contacts between contact "Jerry" and "Friend," or perhaps the timing of contacts, e.g., immediately following "Frank" contacting "Jerry." Likewise, "Friend" may be included because of a particular type of relationship with "Cousin Henry," such as living at the same address or members of the same gang.

[0128] Irrespective of the particular information presented, the information vector results screens of preferred embodiments of the present invention, such as communication links screen 1301, present a readily understandable activity dossier with respect to an inmate or other

individual. Moreover, by combining the activity dossier of a subject, e.g., subject 1300, with similar activity dossiers of other individual, an investigator could see the entire network of people communicating or interacting with particular individuals. For example, as shown in FIGURE 14, such a relationship chart could show that inmates from around the country (or around the world) are all calling the same person 1302. Also calling person 1302 is Little Max, a known gun (drug, etcetera) dealer. Such information could be invaluable to an investigator in analyzing the relationships of particular individuals as well as to spot suspicious activity.

[0129] Moreover, other aspects of information management systems may be utilized in combination with such an investigative tool to further enhance the usefulness thereof. For example, the call links, or particular calls thereof, may be selected for operation of word searching on call records, or for searching an email database, even if those databases are maintained by different enterprises around the country.

[0130] Similarly, since preferred embodiments of the present invention provide external connections, such as to public or other databases via the Internet, an investigator could supplement a search using these resources. For example, an investigator may look at public records, such as available from PUBLICDATA.COM, as shown in FIGURE 15, to obtain property, and other records, or to obtain more detailed information pertaining to an individual.

[0131] It should be appreciated that utilization of embodiments of the present invention are not limited to application with respect to post-event analysis of data. For example, embodiments of the invention may be utilized for pre-event analysis of data, such as to proactively identify problems or issues. For example, a sheriff may set particular search parameters, e.g., select relevant information vectors, to cause an alert or report to be issued, e.g., when more than one prisoner in a facility calls a same phone number or when call velocity suddenly increases, useful in determining that an undesired event may be on the horizon, such as unauthorized drug trades or a riot.

[0132] From the above, it should be appreciated that embodiments of the present invention provide an electronic based capability, utilizing an IT fabric such as provided by justice information network 61 of FIGURE 6, to connect and cross information vectors into and jump databases in a fashion that is otherwise not available today. The above mentioned IT fabric

in combination with software coded logic, providing operation as described herein, enables embodiments of the present invention not only to directly identify and harvest data from the IT fabric, but also to spawn extended or indirect data identification, correlation, and/or harvesting of data. Specifically, embodiments of the present invention utilize individual information vector lines and the confluence of multiple information vector lines to enable real-time practical searches of information that otherwise would not be possible. Utilization of particular information vectors, as described above, facilitates end party nodal searching combined with nodal hopping, perhaps combined with flow of funds information, call, and/or subject data, for locating, collecting, compiling, aggregating, distilling, and/or reporting robust data.

[0133] Although the present invention and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made herein without departing from the spirit and scope of the invention as defined by the appended claims. Moreover, the scope of the present application is not intended to be limited to the particular embodiments of the process, machine, manufacture, composition of matter, means, methods and steps described in the specification. As one of ordinary skill in the art will readily appreciate from the disclosure of the present invention, processes, machines, manufacture, compositions of matter, means, methods, or steps, presently existing or later to be developed that perform substantially the same function or achieve substantially the same result as the corresponding embodiments described herein may be utilized according to the present invention. Accordingly, the appended claims are intended to include within their scope such processes, machines, manufacture, compositions of matter, means, methods, or steps.